

10/084,022

- 9 -

REMARKS*Amendments to the Claims*

Claim 1 is amended to include the recitation that the saturation ratio of the contaminant is determined from analysis of the oxidized products such that identity of the contaminant may thereafter be determined. Claim 1 is also amended to clarify that one or more contaminants can be detected, identified and quantified using the method of the present invention. Support for these amendment is found in elements of allowed Claims 19 and 24, and in the specification at paragraph [0023], [0024] and [0025].

Claims 17 and 21 are amended to indicate that the contaminant is also selectively detected and identified, and to include an additional step comprising determining the saturation ratio of the contaminant from analysis of the oxidized products such that identity of the contaminant may thereafter be determined. Claims 17 and 21 are also amended to clarify that one or more contaminants can be selectively detected, identified and quantified using the method of the present invention. Support for these amendments are found in the elements of allowed Claims 19 and 24, and in the specification at paragraph [0023], [0024] and [0025].

Claim 25 is amended to indicate that the heavy hydrocarbon contaminant is also identified by determining the saturation ratio of said heavy hydrocarbon contaminant from analysis of the oxidized products. Support for this amendment is found in the elements of allowed Claims 19 and 24, and in the specification at paragraph [0024] and [0025].

Claim 26 is amended into dependent claim of Claim 1. Support for this amendment is found in the application at paragraph [0007] and [0011].

Claim 27 is amended to indicate that the contaminant is also selectively detected and identified, and to include an additional step comprising determining the saturation ratio of the contaminant from analysis of the oxidized products. Claim 27 is also amended to clarify that one or more contaminants can be selectively detected, identified and quantified using the method of the present invention. Support for these amendments are found in the elements of allowed Claim 24, and in the specification at paragraph [0023], [0024] and [0025].

New Claim 28 has been added and finds support from Claim 23 and the specification at paragraph [0013].

The amendments to the claims contain no new matter.

10/084,022

- 10 -

Allowable Subject Matter

Pending Claims 19 and 24 are allowable.

Rejection under 35 U.S.C. §103(a) over Bies

Claims 1-6, 11-17, 20-22 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bies (U.S. Patent No. 2,364,940).

Claim 1, as amended, is directed to a method for detecting, identifying, and quantifying at least one oxidizable contaminant in a gas stream at a low concentration level (emphasis added). As amended, Claim 1 incorporates the step of determining the saturation ratio of the oxidizable contaminant, as in the allowed Claims 19 and 24. Bies neither teaches nor suggests the methodology of identifying an oxidizable contaminant in a gas stream and further comprising the step of determining the saturation ratio of the contaminant, as indicated by the Examiner. Thus, Claim 1, as amended, and its dependent Claims 2-16, 20 and 26 are not obvious in view of Bies.

Regarding Claims 3-6, the Examiner states that, in the Bies reference, the combustion of hydrogen or hydrocarbon component or oxidizable contaminant contained within the gas sample is complete. Therefore, the concentration of the oxidizable component after combustion is amounted to be zero or negligible. Applicant respectfully points out that the low concentration level of the contaminant in Claims 1 and 3-6 is directed to the concentration of the contaminant before combustion (emphasis added).

As amended, Claim 17 is directed to a method of selectively detecting, identifying and quantifying at least one oxidizable contaminant within a plurality of contaminants in a gas stream under conditions such that less than all of said plurality of contaminant are completely oxidized (emphasis added). Furthermore, in dependent Claim 18, selective oxidation is achieved by contacting the gas stream with an oxidation catalyst and controlling conditions to maintain temperature such that less than all said plurality of contaminants are catalytically oxidized. There is no teaching, suggestion or motivation in the Bies reference for selective oxidation of a subset of oxidizable contaminants. The Bies method requires complete oxidation of the entire sample and there is nothing taught in Bies how one could achieve selective oxidation. Furthermore, Bies provides no teaching, suggestion or motivation of Applicant's method for identifying an oxidizable contaminant and further comprising the step of determining the

10/084,022

- 11 -

saturation ratio of the contaminant from analysis of the oxidized products such that the identity of the contaminant may thereafter be determined. Therefore, the method of Claims 17 and 18 cannot be rendered obvious in view of Bies.

Claim 21, as amended, is likewise directed to selectively detecting, identifying and quantifying the concentration of selected oxidizable contaminants (emphasis added), such as by controlling temperature (see dependent Claim 23). See paragraph [0013] of the specification for a discussion of individually oxidizing contaminants in a mixture of contaminants. For example, heavy hydrocarbons can be separated from light hydrocarbons. As discussed above, Bies does not teach, suggest or motivate one to selectively oxidize contaminants. In addition, Claim 21 is amended to incorporate the step of determining the saturation ratio of the oxidizable contaminant from analysis of the oxidized products such that identity of the contaminant may thereafter be determined. Bies does not teach, suggest or motivate Applicant's method to identify an unknown contaminant by determining the saturation ratio of the contaminant.

As amended, Claim 27 is directed to detecting, identifying and quantifying an oxidizable contaminant in a gas stream using the saturation ratio of the contaminant and the quantity of carbon dioxide and water. As discussed above, Bies does not teach, suggest or motivate how to determine the identity of an oxidizable contaminant.

For the reasons presented above, withdrawal and reconsideration of the rejection are respectfully requested as Bies fails to teach Applicant's claimed method set forth in the claims, fails to teach selective oxidation of a subset of contaminants in the gas stream, and further fails to teach the method of identifying oxidizable contaminants comprising the step of determining the saturation ratio of the contaminant from analysis of the oxidized product.

Rejection under 35 U.S.C. §103(a) over Bies and Oh et al

Claims 7-10, 18, 23, 25 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bies (U.S. Patent No. 2,364,940) and Oh *et al.* (U.S. Patent No. 5,736,104).

As discussed above, independent Claims 1, 17, 21 and 25 are amended to incorporate the step of determining the saturation ratio of the contaminant from analysis of the oxidized products, such that identity of the contaminant may thereafter be determined. Bies, Oh, or the combination of Bies and Oh, fails to teach, suggest or motivate Applicant's method for identifying an oxidizable contaminant in a gas stream comprising the step of determining the

10/084,022

- 12 -

saturation ratio of the contaminant from analysis of the oxidized products. Therefore, the subject matter of Claims 1, 7, 21, 25, and their dependent Claims 2-16, 18, 22, 23, 26, can not be rendered obvious in view of Bies and Oh.

For the reasons presented above, withdrawal and reconsideration of the rejection are respectfully requested as Bies and Oh fail to teach Applicant's claimed method set forth in the claims, and fail to teach the method of identifying oxidizable contaminants comprising the step of determining the saturation ratio of the contaminant from analysis of the oxidized product.

New Claim 28


New Claim 28 is submitted for consideration. Claim 28 is a dependent claim of Claim 25 and is substantially similar to Claim 23. Claim 28 is patentable for substantially the same reasons that Claim 25 is patentable.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 
Alice O. Carroll
Registration No. 33,542
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated:

April 18, 2006